



Query Query History

```
1  -- =====
2  -- 1. CREATE DATABASE SCHEMA
3  -- =====
4
5  -- Create Employee Table
6  CREATE TABLE Employee (
7      Fname VARCHAR(50),
8      Lname VARCHAR(50),
9      SSN VARCHAR(20) PRIMARY KEY,
10     BDATE DATE,
11     Address VARCHAR(200),
12     Sex CHAR(1),
13     Salary DECIMAL(10,2),
14     Superssn VARCHAR(20),
15     Dno INT,
16     FOREIGN KEY (Superssn) REFERENCES Employee(SSN)
17 );
18
19 -- Create Department Table
20 CREATE TABLE Department (
21     Dname VARCHAR(50),
22     DNum INT PRIMARY KEY,
23     MGRSSN VARCHAR(20),
24     MGRStartDate DATE,
25     FOREIGN KEY (MGRSSN) REFERENCES Employee(SSN)
26 );
27
28 -- Create Project Table
29 CREATE TABLE Project (
30     Pname VARCHAR(50),
31     Pnumber INT PRIMARY KEY,
32     Plocation VARCHAR(100),
33     City VARCHAR(50),
34     Dnum INT,
```



Query Query History

```
38  -- Create Works_for Table
39  CREATE TABLE Works_for (
40      ESSN VARCHAR(20),
41      Pno INT,
42      Hours INT,
43      PRIMARY KEY (ESSN, Pno),
44      FOREIGN KEY (ESSN) REFERENCES Employee(SSN),
45      FOREIGN KEY (Pno) REFERENCES Project(Pnumber)
46  );
47
48  -- Create Dependent Table
49  CREATE TABLE Dependent (
50      ESSN VARCHAR(20),
51      Dependent_name VARCHAR(100),
52      Sex CHAR(1),
53      Bdate DATE,
54      PRIMARY KEY (ESSN, Dependent_name),
55      FOREIGN KEY (ESSN) REFERENCES Employee(SSN)
56  );
57
58  -- Add Foreign Key constraint from Employee to Department
59  ALTER TABLE Employee ADD FOREIGN KEY (Dno) REFERENCES Department(DNum);
60
61  -- =====
62  -- 2. INSERT INITIAL DATA
63  -- =====
64
65  -- Insert Departments first (to satisfy FK constraints)
66  INSERT INTO Department VALUES ('DP1', 10, NULL, '2005-01-01');
67  INSERT INTO Department VALUES ('DP2', 20, NULL, '2006-03-01');
68  INSERT INTO Department VALUES ('DP3', 30, NULL, '2006-06-01');
69
70  -- Insert Employees
71  INSERT INTO Employee VALUES ('Ahmed', 'Ali', '112233', '1965-01-01', '15 Ali fahmy St.Gi
```





```
72 INSERT INTO Employee VALUES ('Amr', 'Omran', '321654', '1963-09-14', '44 Hilopolis.Cairo
73
74 -- Then insert employees supervised by the above
75 INSERT INTO Employee VALUES ('Kamel', 'Mohamed', '223344', '1970-10-15', '38 Mohy el die
76 INSERT INTO Employee VALUES ('Noha', 'Mohamed', '968574', '1975-02-01', '55 Orabi St. El
77 INSERT INTO Employee VALUES ('Edward', 'Hanna', '512463', '1972-08-19', '18 Abaas El 3ak
78
79 -- Then insert employees supervised by the second level
80 INSERT INTO Employee VALUES ('Hanaa', 'Sobhy', '123456', '1973-03-18', '38 Abdel Khalik
81 INSERT INTO Employee VALUES ('Mariam', 'Adel', '669955', '1982-06-12', '269 El-Haram st.
82 INSERT INTO Employee VALUES ('Maged', 'Raoof', '521634', '1980-04-06', '18 Kholosi st.Sh
83
84 -- Update Department managers
85 UPDATE Department SET MGRSSN = '223344' WHERE DNum = 10;
86 UPDATE Department SET MGRSSN = '968574' WHERE DNum = 20;
87 UPDATE Department SET MGRSSN = '512463' WHERE DNum = 30;
88
89 -- Insert Projects
90 INSERT INTO Project VALUES ('AL Solimaniah', 100, 'Cairo_Alex Road', 'Alex', 10);
91 INSERT INTO Project VALUES ('Al Rabwah', 200, '6th of October City', 'Giza', 10);
92 INSERT INTO Project VALUES ('Al Rawdah', 300, 'Zaied City', 'Giza', 10);
93 INSERT INTO Project VALUES ('Al Rowad', 400, 'Cairo_Faiyom Road', 'Giza', 20);
94 INSERT INTO Project VALUES ('Al Rehab', 500, 'Nasr City', 'Cairo', 30);
95 INSERT INTO Project VALUES ('Pitcho american', 600, 'Maady', 'Cairo', 30);
96 INSERT INTO Project VALUES ('Ebad El Rahman', 700, 'Ring Road', 'Cairo', 20);
97
98 -- Insert Works_for relationships
99 INSERT INTO Works_for VALUES ('223344', 100, 10);
100 INSERT INTO Works_for VALUES ('223344', 200, 10);
101 INSERT INTO Works_for VALUES ('223344', 300, 10);
102 INSERT INTO Works_for VALUES ('112233', 100, 40);
103 INSERT INTO Works_for VALUES ('968574', 400, 15);
104 INSERT INTO Works_for VALUES ('968574', 700, 15);
105 INSERT INTO Works_for VALUES ('968574', 300, 10);
```





```
106 INSERT INTO Works_for VALUES ('669955', 400, 20);
107 INSERT INTO Works_for VALUES ('223344', 500, 10);
108 INSERT INTO Works_for VALUES ('669955', 700, 7);
109 INSERT INTO Works_for VALUES ('669955', 300, 10);
110 INSERT INTO Works_for VALUES ('512463', 500, 10);
111 INSERT INTO Works_for VALUES ('512463', 600, 25);
112 INSERT INTO Works_for VALUES ('521634', 500, 10);
113 INSERT INTO Works_for VALUES ('521634', 600, 20);
114 INSERT INTO Works_for VALUES ('521634', 300, 6);
115 INSERT INTO Works_for VALUES ('521634', 400, 4);
116
117 -- Insert Dependents
118 INSERT INTO Dependent VALUES ('112233', 'Hala Saied Ali', 'F', '1970-10-18');
119 INSERT INTO Dependent VALUES ('223344', 'Ahmed Kamel Shawki', 'M', '1998-03-27');
120 INSERT INTO Dependent VALUES ('223344', 'Mona Adel Mohamed', 'F', '1975-04-25');
121 INSERT INTO Dependent VALUES ('321654', 'Ramy Amr Omran', 'M', '1990-01-26');
122 INSERT INTO Dependent VALUES ('321654', 'Omar Amr Omran', 'M', '1993-03-30');
123 INSERT INTO Dependent VALUES ('321654', 'Sanaa Gawish', 'F', '1973-05-16');
124 INSERT INTO Dependent VALUES ('512463', 'Sara Edward', 'F', '2001-09-15');
125 INSERT INTO Dependent VALUES ('512463', 'Nora Ghaly', 'F', '1976-06-22');
126
127 select * from Employee;
128
129 -- =====
130 -- 3. DATA MANIPULATION LANGUAGE (DML)
131 -- =====
132
133 -- 1. Insert personal data to employee table
134 INSERT INTO Employee VALUES ('John', 'Doe', '102672', '1995-05-15', '123 Main St. Cairo'
135
136 -- 2. Insert friend's data (with NULL salary and supervisor)
137 INSERT INTO Employee VALUES ('Jane', 'Smith', '102660', '1994-08-20', '456 Oak Ave. Giza
138
139 -- 3. Insert new department "DEPT IT"
```



```
139 -- 3. Insert new department "DEPT IT"
140 INSERT INTO Department VALUES ('DEPT IT', 100, '112233', '2006-11-01');
141
142 -- 4. Move Noha Mohamed to be manager of department 100
143 -- a. Update Noha's record in department table
144 UPDATE Department SET MGRSSN = '968574', MGRStartDate = '2006-11-01' WHERE DNum = 100;
145
146 -- b. Update my record to be department 20 manager
147 UPDATE Department SET MGRSSN = '102672', MGRStartDate = CURRENT_DATE WHERE DNum = 20;
148 UPDATE Employee SET Dno = 20 WHERE SSN = '102672';
149
150 -- c. Update friend to be supervised by me
151 UPDATE Employee SET Superssn = '102672' WHERE SSN = '102660';
152
153 -- 5. Delete Kamel Mohamed's data (handle dependencies first)
154 -- Transfer his supervisees to the friend
155 UPDATE Employee SET Superssn = '102660' WHERE Superssn = '223344';
156
157 -- Delete his dependents
158 DELETE FROM Dependent WHERE ESSN = '223344';
159
160 -- Remove him from projects
161 DELETE FROM Works_for WHERE ESSN = '223344';
162
163 -- Update department manager if needed
164 UPDATE Department SET MGRSSN = '102660' WHERE MGRSSN = '223344';
165
166 -- Finally delete the employee
167 DELETE FROM Employee WHERE SSN = '223344';
168
169 -- 6. Upgrade my salary by 20%
170 UPDATE Employee SET Salary = Salary * 1.2 WHERE SSN = '102672';
171
172 -- =====
```



```

171
172 -- =====
173 -- 4. QUERIES
174 -- =====
175
176 -- 1. Display all the employees Data
177 SELECT * FROM Employee;
178
179 -- 2. Display employee First name, last name, Salary and Department number
180 SELECT Fname, Lname, Salary, Dno FROM Employee;
181
182 -- 3. Display all projects names, locations and the department responsible
183 v SELECT P.Pname, P.Plocation, D.Dname
184 FROM Project P
185 JOIN Department D ON P.Dnum = D.DNum;
186
187 -- 4. Display employee full name and annual commission (10% of annual salary)
188 v SELECT
189     CONCAT(Fname, ' ', Lname) AS "Full Name",
190     (Salary * 12 * 0.10) AS "ANNUAL COMM"
191 FROM Employee
192 WHERE Salary IS NOT NULL;
193
194 -- 5. Display employees Id, name who earn more than 1000 LE monthly
195 v SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
196 FROM Employee
197 WHERE Salary > 1000;
198
199 -- 6. Display employees Id, name who earn more than 10000 LE annually
200 v SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
201 FROM Employee
202 WHERE (Salary * 12) > 10000;
203
204 -- 7. Display names and salaries of female employees
205 v SELECT CONCAT(Fname, ' ', Lname) AS Name, Salary

```

-- 7. Display names and salaries of female employees

```
✓ SELECT CONCAT(Fname, ' ', Lname) AS Name, Salary  
FROM Employee  
WHERE Sex = 'F';
```

-- 8. Display department id, name managed by manager with id 968574

```
✓ SELECT DNum, Dname  
FROM Department  
WHERE MGRSSN = '968574';
```

-- 9. Display IDs, names and locations of projects controlled by department 10

```
✓ SELECT Pnumber, Pname, Plocation  
FROM Project  
WHERE Dnum = 10;
```

```

175 -- 1. Display all the employees Data
176 SELECT * FROM Employee;
177
178
179 -- 2. Display employee First name, last name, Salary and Department number
180 SELECT Fname, Lname, Salary, Dno FROM Employee;
181
182 -- 3. Display all projects names, locations and the department responsible
183 SELECT P.Pname, P.Plocation, D.Dname
184 FROM Project P
185 JOIN Department D ON P.Dnum = D.DNum;
186
187 -- 4. Display employee full name and annual commission (10% of annual salary)
188 SELECT
189     CONCAT(Fname, ' ', Lname) AS "Full Name",
190     (Salary * 12 * 0.10) AS "ANNUAL COMM"

```

Data Output Messages Notifications

Showing rows: 1 to 9 Page No: 1 of 1

	fname character varying (50)	lname character varying (50)	ssn [PK] character varying (20)	bdate date	address character varying (200)	sex character (1)	salary numeric (10,2)	superss character
1	Ahmed	Ali	112233	1965-01-01	15 Ali fahmy St.Giza	M	1300.00	[null]
2	Amr	Omran	321654	1963-09-14	44 Hilopolis.Cairo	M	2500.00	[null]
3	Noha	Mohamed	968574	1975-02-01	55 Orabi St. El Mohandiseen.Cairo	F	1600.00	321654
4	Edward	Hanna	512463	1972-08-19	18 Abaas El 3akaad St. Nasr City.Cairo	M	1500.00	321654
5	Mariam	Adel	669955	1982-06-12	269 El-Haram st. Giza	F	750.00	512463
6	Maged	Raof	521634	1980-04-06	18 Kholosi st.Shobra.Cairo	M	1000.00	968574
7	Jane	Smith	102660	1994-08-20	456 Oak Ave. Giza	F	[null]	102672
8	Hanaa	Sobhy	123456	1973-03-18	38 Abdel Khalik Tharwat St. Downtown.Cairo	F	800.00	102660
9	John	Doe	102672	1995-05-15	123 Main St. Cairo	M	1440.00	112233





```

182 -- 3. Display all projects names, locations and the department responsible
183 v SELECT P.Pname, P.Plocation, D.Dname
184 FROM Project P
185 JOIN Department D ON P.Dnum = D.DNum;
186
187 -- 4. Display employee full name and annual commission (10% of annual salary)
188 v SELECT
189     CONCAT(Fname, ' ', Lname) AS "Full Name",
190     (Salary * 12 * 0.10) AS "ANNUAL COMM"
191 FROM Employee
192 WHERE Salary IS NOT NULL;
193
194 -- 5. Display employees Id, name who earn more than 1000 LE monthly
195 v SELECT EMPID, CONCAT(Fname, ' ', Lname) AS Name

```

Data Output Messages Notifications

SQL
 Showing rows: 1 to 7

	pname character varying (50)	plocation character varying (100)	dname character varying (50)
1	Pitcho american	Maady	DP3
2	Al Rehab	Nasr City	DP3
3	Ebad El Rahman	Ring Road	DP2
4	Al Rowad	Cairo_Faiyom Road	DP2
5	Al Rawdah	Zaied City	DP1
6	Al Rabwah	6th of October City	DP1
7	AL Solimaniah	Cairo_Alex Road	DP1



```

SELECT
    CONCAT(Fname, ' ', Lname) AS "Full Name",
    (Salary * 12 * 0.10) AS "ANNUAL COMM"
FROM Employee
WHERE Salary IS NOT NULL;

```

-- 5. Display employees Id, name who earn more than 1000 LE monthly

```

SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
FROM Employee
WHERE Salary > 1000;

```









-- 6. Display employees Id, name who earn more than 10000 LE annually

```

SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name

```

Output Messages Notifications









SQL

Showing rows: 1 to 8

Full Name text	ANNUAL COMM numeric
Ahmed Ali	1560.0000
Amr Omran	3000.0000
Noha Moha...	1920.0000
Edward Hanna	1800.0000
Mariam Adel	900.0000
Maged Raoof	1200.0000
Hanaa Sobhy	960.0000
John Doe	1728.0000

```

195 SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
196 FROM Employee
197 WHERE Salary > 1000;
198
199 -- 6. Display employees Id, name who earn more than 10000 LE annually
200 SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
201 FROM Employee
202 WHERE (Salary * 12) > 10000;
203

```

Data Output Messages Notifications



Showing rows: 1 to 5

	ssn [PK] character varying (20)	name text
1	112233	Ahmed Ali
2	321654	Amr Omran
3	968574	Noha Moha...
4	512463	Edward Hanna
5	102672	John Doe



```

199 -- 6. Display employees Id, name who earn more than 10000 LE annually
200 ✓ SELECT SSN, CONCAT(Fname, ' ', Lname) AS Name
201 FROM Employee
202 WHERE (Salary * 12) > 10000;
203
204 -- 7. Display names and salaries of female employees
205 ✓ SELECT CONCAT(Fname, ' ', Lname) AS Name, Salary
206 FROM Employee
207 WHERE Sex = 'F';
208
209 -- 8. Display department id, name managed by manager with id 968574
210 ✓ SELECT DNum, Dname
211 FROM Department
212 WHERE MGRSSN = '968574';
213

```

Data Output Messages Notifications



Showing rows: 1 to 6

	ssn [PK] character varying (20)	name text
1	112233	Ahmed Ali
2	321654	Amr Omran
3	968574	Noha Moha...
4	512463	Edward Hanna
5	521634	Maged Raoof
6	102672	John Doe

```

204 -- 7. Display names and salaries of female employees
205 ✓ SELECT CONCAT(Fname, ' ', Lname) AS Name, Salary
206 FROM Employee
207 WHERE Sex = 'F';
208
209 -- 8. Display department id, name managed by manager with id 968574
210 ✓ SELECT DNum, Dname
211 FROM Department
212 WHERE MGRSSN = '968574';
213
214 -- 9. Display IDs, names and locations of projects controlled by department 10
215 ✓ SELECT Pnumber, Pname, Plocation
216 FROM Project
217 WHERE Dnum = 10;

```

Data Output Messages Notifications



Showing rows: 1

	name text	salary numeric (10,2)
1	Noha Mohamed	1600.00
2	Mariam Adel	750.00
3	Jane Smith	[null]
4	Hanaa Sobhy	800.00



-- 8. Display department id, name managed by manager with id 968574

SELECT DNum, Dname

FROM Department

WHERE MGRSSN = '968574';

-- 9. Display IDs, names and locations of projects controlled by department

SELECT Pnumber, Pname, Plocation

FROM Project

WHERE Dnum = 10;

Output Messages Notifications



Showing

dnum [PK] integer	dname character varying (50)
100	DEPT IT

```

212 WHERE MGRSSN = '968574';
213
214 -- 9. Display IDs, names and locations of projects controlled by department 10
215 SELECT Pnumber, Pname, Plocation
216 FROM Project
217 WHERE Dnum = 10;
218
219 -- =====
220 -- 5. ADDITIONAL USEFUL QUERIES
221 -- =====
222
223 -- Show current state of all tables
224 SELECT 'EMPLOYEES' as Table_Name;
225 SELECT * FROM Employee;

```

Data Output Messages Notifications



Showing rows: 1 to 3 Page

	pnumber [PK] integer	pname character varying (50)	plocation character varying (100)
1	100	AL Solimaniah	Cairo_Alex Road
2	200	Al Rabwah	6th of October City
3	300	Al Rawdah	Zaied City